# OBSERVATIONS
ON
# CHOLERA ASIATICA:
WITH
# AN APPENDIX.

BY
RICHARD PHILLIPS JONES, M.D.

SECOND EDITION.

*Price*, 1s. 6*d*.

EDWARD DUCKER, FAUCAIT LOW, CHESTER.

# OBSERVATIONS

ON

# CHOLERA ASIATICA;

ITS SYMPTOMS,

MODE OF TREATMENT, AND PREVENTION.

WITH

## AN APPENDIX.

SELECTED AND ABRIDGED BY


## RICHARD PHILLIPS JONES, M.D.

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——"MINIMUS GELIDO JAM IN CORPORE SANGUIS
FEBRE CALET SOLA." *Jurenal Sat.* X.

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1849.

TO

THE RIGHT HONOURABLE

# THE LORD DINORBEN, &c. &c.

OF KINMEL PARK, FLINTSHIRE,

Whose firm and constant zeal for the promotion of Science; and particularly so when devoted to the alleviation of suffering humanity; these few Pages are most respectfully inscribed, as a warm, though humble testimony of his Lordship's unceasing sympathy and regard for the poor and the destitute,

By his Lordship's

Most faithful and obedient Servant,

THE AUTHOR.

# TO THE PUBLIC.

In presenting these "Observations," I cannot refrain from alluding to the unhappy cause which gave me the impulse to compile them. The Cholera breaking out at St. Asaph, revived all those gloomy apprehensions to which, for some time, at least, we had been strangers in this part of the country.

The question "*What are we to do?*" at any time one of great embarrassment, is rendered much more so when the calamity is at our own doors: it is a question also very humiliating to the feelings of every conscientious medical practitioner; how frequently it occurs, that with all their solicitude, combined with their utmost exertions, mental as well as physical, their means prove abortive, and their patient dies: for, unhappily, the destroying agency of this disease, when at its height, is seldom vanquished by medicine.

It is, however, gratifying to learn, that recoveries have taken place, and sometimes in the advanced stages of Cholera. This fact should serve to animate our zeal, and to encourage us to persevere in our labours of mercy with cheerfulness and hope, although it be at "the eleventh hour."

I cannot omit this opportunity, while upon the threshold of my task, to implore that no one will ever disregard what are termed the *minor* or *Premonitory*

*Symptoms* of the disease; and more particularly at a time when the epidemic is raging. This is a precaution mainly to be insisted, and upon which I conceive depends the grand source of *prevention*.

I would also seriously recommend those who become subdued and overcome by an *overwhelming* dread and fear of the disease, (a sensation which at all times depresses not only the sensorial, but the vital functions), promptly to quit the scene of their apprehension; for to them it is indeed a pestilential spot—a true "City of the Plague."

There is likewise another point of infinite importance, which, from all the information I can collect, and from what I have personally witnessed, should never be lost sight of—I allude to the diarrhœa, which invariably precedes an attack of Cholera, at a time when the disease is an epidemic. It is a diarrhœa always curable if early attended to, and when cured, it rarely fails to prove a complete exemption from an attack.

Thus this formidable monster, wrapped in mystery, and inspiring us with no other feelings but of gloom and despair, may, in this light, be viewed with calmness and tranquillity, as a malady, the secrets of which are open to us, and the control of which we hold nearly within our grasp.

"By crushing the chrysalis, we would put a stop to the destruction of the devouring fly—to its growth and existence."

Denbigh,
Sept. 20th, 1834.

# PREFACE TO THE SECOND EDITION.

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The first edition of this pamphlet was published at Denbigh, in 1834, soon after the disastrous visitation of Cholera in that town and neighbourhood; its object being solely to present, in a condensed form, such information as I was then capable of gleaning from the writings of the most eminent practitioners who had devoted their labours to the investigation of a newly-imported disease, which produced such calamitous fatality both at home and abroad.

I have not found it necessary to alter the original text, so accurate were the observations of those who first promulgated their opinions, but much has been added with respect to its treatment; I have, therefore, in pursuance of my original design, recorded, in the form of an Appendix, such additional matter as may be found useful on that head.

Should this compilation prove to be a useful hand-book in the treatment of Cholera, and of sufficient importance to afford even a bird's-eye view of what ought to be done in the event of its visitation to our city, my object will be more than compensated.

Chester,
January 1st, 1849.

# OBSERVATIONS, &c.

From the numerous and repeated questions put to me of "What are we do should Cholera appear amongst us?" I have been induced to select the best information I can glean upon the subject, and to place before my readers a concise and popular view of the disease, together with directions for the adminstration of proper remedies in its various stages, and the means usually adopted for prevention.

All who have written on the subject, concur in its malarious origin: of this we had abundant testimony in our own town, and more recently at St. Asaph.

Some persons affect to be tired of the subject, and to despise the discussion of it; but, as Johnson said of ghosts, "those who deny their belief in them, confess it by their fears." There can be no doubt that the dread of Cholera is great; and, however foolish it may be to suffer this dread to have any influence, it is equally so to disregard it altogether: to keep alive the existence of the disease is the best security for its annihilation.

When we contemplate the introduction and the peculiar features of this disease, and carefully trace the influence of human ingenuity in repelling, destroying, and modifying its character, the mind naturally turns to the consideration of how far it is likely to take root among us; whether it may not be transient like the plague, or permanent like the small-pox. The question is not idle and speculative; for we have reason to believe, that human efforts have not been altogether unavailing in modifying the laws of disease, as vaccination has modified the small-pox, and seasonable ventilation and cleanliness the infectious influences of endemic diseases. The march of the disease is indicated chiefly by its route along the marshes and canals; but its halts have occurred in populous towns and villages, where the greatest accumulations of human life are found. It has been nourished and propagated wherever there was the least quantity of space, the worst habits of life, and the least fluctuation of air. The adhesion and propagation of Cholera have always been in a direct ratio to those causes, both moral and physical, which tend most to debilitate the human constitution, and lower the standard of bodily health.

Wherever population existed, under the influence of circumstances notoriously favourable to public and individual health, the scourge has been wielded with the lightest hand. Such appears to

be the general law of the action of Cholera upon the human frame, and no small benefit, hope, and consolation do we obtain from its decided recognition and establishment. Our hopes, our expectations, and our future prospects of this disease depend upon keeping this law in view, and closely applying the principles upon which it is founded.

Drs. Russell and Barry lived several months among the dying and the dead of Cholera—they fearlessly visited the mud and timber cottages of Russian towns and villages—spent many hours among the sick—minutely examined all the reports and details of the disease—watched the signs and symptoms, and investigated accurately all the coincident circumstances which appeared to influence the constitution of those afflicted, and which either hurried their dissolution, or promoted their recovery;—they grappled with the disease in its strong holds, and returned to their grateful and expecting country fraught with knowledge and consolation.

In their report they state, in the most decided manner, "That no specific preventative against Cholera is known to exist; and that the drugs hitherto offered with this pretension in countries where the greatest ravages have been caused by this disease, not only did not possess the negative virtue of doing no harm, but were found to be absolutely injurious." Again, "The true preventa-

tives are, a healthy body, and a cheerful unruffled mind: looseness of bowels should be immediately checked, and anything like periodical chills or cold perspirations, should be met by *quinine*, in suitable doses: but habitual drugging, at all times improper, is to be deprecated in the strongest terms when epidemic disease is apprehended."

It is impossible to extol too highly the language in which this axiom is laid down, and the masterly manner in which "free currents of air, cleanliness, space, bodily health, and a cheerful mind," are insisted on as the safe-guards of the human constitution against spreading epidemics—all contrary circumstances being best calculated to encourage and propagate its impressions.

We believe that those who are situated so as to ensure these conditions, are safe; and that the more they are attended to and encouraged, the less will be the spreading of this disease, its fatality, and the chances of its permanency. Depletion and repletion, in excess, are evidently hostile to its resistance; and the folly of many in adopting the former or the latter as preventatives, is too commonly conspicuous; at the same time, a cautious and general attention to the ordinary methods of dieting, cannot be too forcibly observed.

In the absence of any specific remedy, it is of vital importance that we should look, with confi-

dence to the means of prevention as a substitute of even higher value.

There is one point, in this disease, of a very consolatory nature, which is not common with other epidemics and contagions, viz. that those who suffer are but a short time ill; and, when recovered, do not appear to have incurred any permanent affection of body or mind; no organic mischief is induced—and the enemy appears to quit the field without leaving any havoc behind him, or maiming his victim with corporeal or mental imbecility. The great source of terror is its fatality, although the disease is actually less fatal than some others.

The laws of contagion and infection are imperfecty understood; they appear to be of different kinds, and are liable to many modifications.—Thus, one disease is propagated by actual touch; another by emanations from the body to a considerable distance; a third is transmitted from the body in a very limited sphere of action; a fourth is wafted from the body by currents of air in particular directions; a fifth is propagated by breath; the seeds of a sixth lie dormant in marshes, drains, &c. and propagate disease when exposed to certain modifications of the air; and a seventh is communicated by mental association. In the spreading of infection in Cholera, there appears to be certain conditions necessary in the recipient body and the surrounding air: if the former be in

that state of mental and bodily vigour described, escape seems very frequent; and if the air around the emanating body be wholesome, fresh, and circulating, the chances of escape are very much increased. Therefore, whether the disease be contagious or not, our great reliance will be upon freedom of air, space, cleanliness, and habitual vigour of the corporeal and mental powers.

There is a serious deficiency and want of due attention in the exercise of the important duties of "Boards of Health," and more particularly in those localities where the disease has once existed —I allude, with regret, to the general apathy and listlessness which are too often, unhappily, found to prevail in their operations. They should exhibit constant vigilance and solicitude; they should not sleep and doubt, but act promptly and energetically; and always promote the means of cleansing and ventilating—they will then allow the enemy no resting place or footing. Let them ever bear in mind, that the simplest methods within their reach and power of adoption, avail greatly in checking the progress of the disease, and in rendering the human body less, if not wholly, susceptible of the impressions of this epidemic.

# SECTION I.

## ON THE PREMONITORY SIGNS.

As it is my design to pursue this subject from the incipient or milder form of Cholera to its malignant and fatal character, I will commence my observations on the *Premonitory Signs* of the disease.

The earliest indications are slight oppression of the breathing, with a soft and somewhat accelerated pulse, a degree of mental depression and inaction, anxiety of countenance, often accompanied with a dark crescent under the eyes, giddiness, and some muscular debility, uneasiness and nausea; the abdomen almost invariably feels distended, and is affected with slight transient pains, and the urine scanty and pale. These symptoms are usually followed by a moderate diarrhœa, the discharges being natural, consisting of the usual ingesta. The character of the discharge, however, (if the diarrhœa continues long enough interrupted by other violent symptoms) gradually changes, and they have in some instances assumed precisely the choleric character, before any vomiting, cramp, or

collapse had unequivocally declared the nature of the disease. Two other symptoms, of very frequent occurrence, remain to be mentioned, and which, in conjunction with those previously noticed, may be considered almost diagnostic. I allude to slight cramps affecting the fingers and toes, or prevailing still more generally, and coming on during the night, and to a numbness and feeling of inability to move the limbs, approaching to paralysis: it is not a real inability, as a strong effort is sufficient to dispel the illusion; but the sensation recurs, and it is fortunate for the patient if it create sufficient alarm to induce him to seek, without delay, medical assistance.

In some instances, the diarrhœa has preceded the choleric stage by several days; but in others, by eight or ten hours only. Its mean duration, calculated from a number of tables, appears to be about forty-eight hours.

In the premonitory stage of diarrhœa, the opportunity most frequently occurs for the use of purgatives, and none has been yet found superior to rhubarb; of which, half a drachm, in powder, with five grains of ginger, and an ounce each of brandy and water, has the best effect, when the bowels yet retain a considerable quantity of feculent matter; but if the major part of this has been evacuated, the strained effusion of the same quantity in two ounces of water, with a scruple of

carbonate of soda and magnesia is to be preferred, on the first accession of Cholera, when it makes its invasion suddenly. Those who have taken this remedy, or a full dose of the compound tincture of rhubarb, or of senna, have warmly expressed the indescribable relief thus afforded.

By judicious and appropriate treatment in this early stage of the disease, many alarming and often fatal symptoms are prevented, and life preserved; consequently, it is of the last importance that no time should be lost in applying the remedies.

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## SECTION II.

### TREATMENT IN THE PREMONITORY AND DIARRHŒAL STAGES.

In the first variety of symptoms, viz., a difficulty in breathing, nausea, giddiness, and a slight degree of deafness, an emetic must be administered. The best, and often the nearest at hand, is a table spoonful of good mustard, diluted in half a pint of warm water. When the vomiting has ceased, the patient should lose a few ounces of blood from the arm; a gentle aperient is now directed to be given, consisting of calomel and rhubarb, after

which the patient is to be put into a warm bed and restricted to mild diluent fluids, such as warm thin gruel or arrow root.

Should the disease have advanced to the diarrhœal form, it has been found very advantageous to give calomel and opium, combined with aromatics. Dr. Ayre's plan consists of one grain of calomel, with two or three drops of laudanum, every hour or every half hour, repeated for six, eight, or ten successive times, and then every six hours, or twice a day for a short period, directing rice to be substituted for bread or potatoes, and to take some animal food. If the disease assumed a more serious form, the calomel and laudanum were administered every five or ten minutes. "Few," he observes, "treated in this manner, lapsed into the worst stages of the disease."

Dr. Brown, of Sunderland, recommends the following formula:—

R. Hydrargyri Submuriatis, gr. viii. vel x.
Opii, gr. ii.
Pulveris baccarum capsici, gr. iss. vel ii.
Confectionis rosæ, q. s. ut fiat bolus.
Statim sumendus,

and in twelve or fourteen hours afterwards, a dose of castor oil. A large blister was applied to the abdomen, warmth enjoined, and where compliance could be enforced, the patient was confined to his bed, using a mild diluent diet. The subsequent

treatment consisted of smaller doses of calomel and opium, for one or two successive nights, and a second or third dose of the castor oil was repeated.

It sometimes happens, that this stage of the disease is marked by excitement and a peculiar morbid restlessness, rather than by feebleness and relapse; and there are also some particular points of the abdomen tender and painful on the slightest degree of pressure; in such instances the patient must submit to one general bleeding, otherwise a liberal application of leeches to the abdomen, and the stimulating ingredient of cayenne pepper must be left out of the formula. This mode of treatment has been remarkably successful; the alvine secretions have thus speedily resumed their natural bilious appearance, and the diarrhœa has been finally arrested, without the supervention of any further alarming symptoms.

## SECTION III.

### SYMPTOMS OF THE COLD OR CHOLERIC STAGE.

The invasion of Cholera generally takes place in the night, or towards morning. The patient is sick at stomach, he vomits its contents, and his bowels are at the same time evacuated. This evacuation is of a nature peculiar to the disease: the intestinal tube seems to be at once emptied of its fæcal or solid matters, and an indescribable, but most subduing sensation of exhaustion, sinking, and emptiness succeeds—faintness supervenes—the skin becomes cold, and there is frequently giddiness and ringing in the ears—the powers of locomotion are generally soon arrested—spasmodic contractions or twitchings of the muscles of the fingers and toes are felt—and these affections gradually extend along the limbs of the trunk of the body. They partake both of the clonic and tonic spasm, but the clonic form chiefly prevails. The pulse, from the first, is small, weak, and accelerated; and after a certain interval, but especially on the accession of spasm, or severe vomiting, it sinks suddenly so as to be speedily lost in all the external parts. The skin, which from the commence-

ment of the disease is below the natural temperature, becomes colder and colder; it is very rarely dry, generally covered with a profuse cold sweat, or with a clammy moisture, and assumes a livid hue, the whole surface appears collapsed, the lips become blue, the nails present a similar tint, and the skin of the hands and feet becomes much corrugated and exhibits a sodden appearance. In this state the skin is insensible even to the action of chemical agents; yet the patient generally complains of oppressive heat on the surface, and wishes to throw off the bed clothes; the eyes become sunk in the orbits, and are surrounded by a livid circle, the cornea becomes flaccid, the conjunctiva is frequently suffused with blood, the features of the face collapse, and the whole countenance assumes a cadaverous aspect, strikingly characteristic of the disease. There is always urgent thirst and a desire for cold water, although the mouth be not usually parched; the tongue is moist, whitish, and cold; a distressing sense of pain and of burning heat at the epigastrium is common; little or no urine, bile, or saliva is secreted; the voice becomes feeble, hollow, and unnatural; the respiration is oppressed, generally slow, and the breath cold.

During the progress of these symptoms, the alimentary canal is very variously affected. After the first discharges by vomiting and purging,

however severe these symptoms may be, the matter evacuated is always watery, and in a great proportion of cases it is colourless, inodorous, and homogeneous. In some it is turbid, resembling muddy water; in others, of a yellowish or greenish hue. The vomitings and purgings are not of long continuance; they are either obviated by art, or the body becomes unable to perform these violent actions, and they, together with the spasms, generally disappear a considerable time before death. If blood be drawn, it is dark, almost black, very thick, ropy, and of slow and difficult effusion. Towards the close of the attack, jactitation comes on, with evident internal anxiety and distress, and death takes place often in ten or twelve, generally within eighteen or twenty hours from the attack.

During all this mortal struggle and commotion in the body, the mind remains clear, and its functions undisturbed, almost to the last moment of existence. Such is the ordinary course of Cholera, where its tendency to death is not checked by art.

## SECTION IV.

### TREATMENT OF THE COLD OR CHOLERIC STAGE.

The first necessary step in the treatment of this fearful stage of Cholera, is to restore a re-action by the stimulus of heat, and the judicious administration of such remedies as will actively promote the secretions. The patient must, therefore, be placed in a warm bed, and chafed with hot flannels over the whole body, while a hot bath is preparing. The flannels may be impregnated with spirits of turpentine. The first internal remedy is a stimulating emetic of mustard, or of sulphate of zinc. The act of full vomiting is a powerful stimulus and an universal excitant of secretion in every glandular structure of the body, and impels the circulation with much more force into the superficial vessels. The use of emetics must be confined to that period of the disease during which the strength of the patient appears able to support their effects—if given too late, when strength is exhausted, they hasten the fatal event, and bring on convulsions.

All writers on the treatment of Cholera are in favour of *bleeding;* but this should be effected early in the attack. The stimulus of an emetic

will greatly contribute to facilitate a flow of blood from an opened vein. Thus in many instances, re-action has been produced, and patients have been brought more easily into a condition to derive benefit from our remedies.

As soon as vomiting and bleeding have produced a salutary effect on the circulation, or have failed to produce that effect after a fair trial, some diffusible stimulant, with calomel and opium, may be administered; brandy, laudanum, and the preparations of ammonia are the most readily procured, the least likely to be loathed, and are, perhaps, the best. These remedies seem to impart vigour to the heart and nervous system, through the medium of the stomach, while they mitigate spasms and tendencies to cramps. To ensure good effects from the calomel and opium, they should be administered early in the disease, and repeated in doses of five to ten grains of the former, with one or two of the latter, every one or two hours, according to the exigencies of the case.

The warm bath may be now used, into which a good allowance of salt and mustard have been thrown. Should exhaustion succeed faintness, the patient must be wrapped in hot blankets and conveyed to bed; after which sinapisms are to be applied to the abdomen and along the spine, whilst the warmth of the body is supported by bottles of hot water enclosed in flannel, bags of hot oats, or

other familiar methods of applying dry heat directed to the extremities, or wherever the vital temperature seems deficient. Frictions of the parts afflicted with spasm will, at the same time, be required, and should, if possible, be performed under the bed clothes.

If the patient be in a state of considerable collapse, whether consequent on the neglect of the early stage, or occurring in spite of the most diligent attention, the croton oil may be administered in conjunction with the calomel and opium. This medicine is highly spoken of, and many deem it of superior efficacy in the stage of collapse; it is best administered in the form of a pill, containing three drops of the oil, five grains of calomel, and two of cayenne pepper. Enemas have been used with very considerable success, and those containing two or three ounces of turpentine or brandy have had the preference; strong infusions of black pepper with thin starch or arrow root have occasionally imparted comfort and warmth to the abdominal viscera. Internal stimulants are highly recommended, and may be given consentaneous with the modes of procuring external heat to the body, such as the carbonate of ammonia and spirits of turpentine. The former in five or six grain doses, and the latter, two or three drachms in warm milk, every second or third hour. Frictions unquestionably afford relief to cramps;

and it is a common practice to rub the extremities while in this state—but by far the most effectual and grateful relief from cramps is obtained by hot fomentations, with a strong solution of salt in water, and by wrapping up the limbs in flannels soaked in that fluid.

In Dr. Stevens' "Observations on the healthy and diseased properties of the blood," he recommends a treatment of Cholera by "Salines," and commenced with a seidlitz powder, after which one containing

Carbonate of soda, half a drachm;
Muriate of soda, one scruple;
Chlorate of potass, seven grains,

was dissolved in a tumbler of water, and administered, in severe cases, every half hour; in those less so, every hour; but of greater malignity, every fifteen minutes. An enema, containing a strong solution of common salt, at as a high a temperature as the patients could well bear, was thown up into the intestines; in some cases they were put into a hot saline bath with evident advantage; Seltzer water was allowed *ad libitum*, when the patients expressed a desire for drink. He also states to have used the saline fluid as an injection into the veins. In Dr. Ward's "Observations upon the Cholera, as it appeared at Wolverhampton and its neighbourhood," he observes, "that the number of cases, 283, in which Dr. Stevens' salines were

given, is a sufficient proof of the estimation in which this remedy was held among us; and I believe the same high opinion of its efficacy still prevails. As there was some difficulty to induce the patients to take them regularly as a medicine, I generally mixed a quantity of the powders in water, and directed that it should be the sole drink of the patient. This mixture I found remained longer on the stomach than any other liquid taken in equal quantities, while it had also the effects of relieving the intense thirst." The proportion of deaths he estimated to be only a fourth of the cases.

This treatment, however, is not extensively adopted, nor are there records sufficient to proclaim its superior efficacy to the mode more generally pursued, and to which I have already adverted. Very numerous indeed are the methods recommended for the treatment of this formidable disease, and which, for the most part, are introduced in accordance with some favourite view or doctrine of its pathology; a subject which, unhappily for the cause of science and humanity, remains yet involved in intricacy and ambiguity.

Many stimulating nostrums have been bruited forth to the world as specifics; some have extolled camphor, cajeput oil, and essence of peppermint; while others confine themselves to warmth, the

inhalation of oxygen gas, electricity, and moderate anodynes and stimulants.

The treatment by enemas is by no means to be despised; many cases are recorded, in which they have proved of essential service. The tobacco injection has been suggested, and was tried with considerable success by Mr. Baird, of Newcastle. Another gentleman of the same town, Mr. Fyfe, recommends, in consequence of considerable success which he experienced, an enema consisting of two pints of warm water, from four to eight ounces of brandy, and from one to two drachms of laudanum, or of Battley's sedative liquor. Another enema is also stated to be very efficacious, which contained a drachm of powdered mustard in warm water; this will be found to be speedily instrumental in restoring the secretion of urine; a function which is always completely suspended in this fearful stage of the disease.

The spirits of camphor, in the proportion of two drops on sugar every five minutes, is a negative and useless practice, when the disease is fairly established. The nitrous acid has been much extolled from its effects in promoting the biliary secretions, and probably, from its well-known antiseptic virtues; but this remedy, like most others, is only efficacious when early administered.

Of all the remedies made use of, calomel, opium, and croton oil claim the highest rank, with

blood-letting, heat, and frictions: then follow alcoholic drinks, aromatics, and a whole host of minor stimuli; among the latter may be named electricity, camphor, the inhalation of oxygen gas, ammonia, capsicum, the essential oils, phosphorus, ogether with an array of others unnecessary to enumerate.

From all the information which I can collect upon the subject, and from what I have practically observed, I recommend that the patient be bled when the state of the circulation will admit, taking away from ten to twenty ounces. Heat may be induced over the surface of the body by the hot-air bath and the other means I have already described: the calomel and opium should be administered, and, if necessary, the croton oil, with a mixture of diluted spirits and water. Repeat this every hour or two, according to the urgency of the symptoms, paying less regard to the quantity given than to the effect produced; if thrown off by vomiting, the dose must be repeated as soon as possible. Some require large quantities and more frequently given; in others two or three exhibitions of the remedies will serve to check the complaint. When the disease has been attacked early—when we have been able to bleed, and the calomel and opium have had time to act, a gentle warm perspiration will bedew the surface; and the altered language, tone, and looks of the sick,

amply proclaim the change. In such cases, and when the vital powers are not broken down by intemperance or debility, or depressed by organic lesions, I believe the disease to be curable in a majority of cases, and much less mortal than fever.

It may be well here to introduce, from an authentic document, the symptoms of the abatement of the disease; for, to pursue the remedies which have arrested its virulence, in one stage, may destroy life if administered in the third or febrile state. "The first favourable symptoms are abatement of spasms and difficulty of breathing, a return of heat to the surface of the body, and a restoration of the pulse. These, however, are equivocal, and from being often only temporary, the prognostic from them is very uncertain unless they follow a progressive march of amendment; sleep and warm perspiration attending it, are more important and more certain signs of recovery. The return of the secretion and evacuation of urine is reckoned one of the most favourable signs; the next is the passage of the bile by the bowels: and if this be freely established, and accompanied with an improvement of the pulse and of the temperature of the skin, the patient is soon placed in a state of security from the attack."

## SECTION V.

### THE THIRD, OR FEBRILE STAGE.

Hopeless and fearful as the stage of collapse may be, yet some emerge from it, and have a faint chance for life. The transition from milder attacks of Cholera is generally into a slight inflammatory fever, with some affection of the head, from which the patient recovers in a few days; but in malignant cases re-action frequently proves fatal. The secretions, which formerly were suppressed, now begin to re-appear; a gentle perspiration takes place; urine is discharged frequently, more or less tinged with bile, and the evacuations consist chiefly of bile in a very vitiated state; a degree of warmth will be found returning to the surface; the pulse is proportionably developed, and the vessels of the conjunctiva gradually become distended with blood; the patient complains of pain in his head, has giddiness, and the light distresses his eyes. The tongue, at first, is clean and moist, and the bowels readily yield to medicine; the discharges are very feculent and bilious: as the fever progresses, the tongue, from being cream coloured, becomes brown, and sometimes black, and sordes accumulate about the teeth: the state

of the skin varies, chills alternating with heats; the pulse becomes quick, weak, and tremulous; the intellect becomes more torpid, and the eyes half turned up in the orbit; restlessness and deep moaning succeed, and the patient sinks, incoherent and insensible, under the debilitating effects of low nervous fever.

The brain seems to be the organ mainly affected in this stage of the disease, and with that view the treatment has been chiefly guided; though, at the same time, congestions have occurred in other vital organs, to which, with the condition of the intestinal canal, our attention must be particularly directed.

Bloody stools is a formidable symptom, and denotes an extreme state of debility, together with complete loss of vital energy; no medicine or plan of treatment has ever afforded the slightest beneficial influence; and, unfortunately, all who have this symptom well marked, die.

Bilious vomiting and purging are exceedingly troublesome, and often destroy the patient, from excessive irritation and exhaustion. Opiate enemas and small doses of calomel and opium, with leeches to the pit of the stomach, and bandages drawn moderately tight over the abdomen, have afforded the best relief: copious draughts of mild liquids will dilute the bilious discharges, and diminish injury and irritation to the mucous membrane.

Should the head become affected, accompanied with typhoid symptoms, little can be done except by early local bleedings and aperients, followed rapidly by wine and nourishing diet; terminating in coma and sleepiness, it becomes unmanageable, and too frequently the patient's fate is sealed.

*Affections of the lungs.*—It seldom happens that a patient escapes from severe collapse without experiencing more or less of pulmonary congestion; which consists simply of an accumulation of blood in the vessels of the parenchyma, without destruction of texture, or effusion of fluid into the air cells—its existence can be ascertained by dullness in percussion, and difficult respiration; it is said to be more common on the right side than the left; this is probably caused, partly by deficient enervation, and partly by the patient's lying almost constantly on his back, at a time when the heart's action is feeble, and the thickened state of the blood renders its circulation through the capillaries of the lungs difficult. The patient does not complain of pain. The tongue is dry and rough, and the pulse frequent. The treatment should consist of repeated bleedings to five or six ounces, cupping between the shoulders, mild purgatives, and gentle sudorifics of Mindererus's spirit and antimonial wine.

In the majority of cases of re-action after severe attacks, the heart will be found to beat more pow-

erfully than natural; in many this subsides, especially if the diarrhœa continues moderate and bilious; in others the impetus goes on increasing, and at length it is heard over the whole chest; it becomes visible externally, and the larger arteries of the neck are seen to pulsate very powerfully. The pulse becomes full, hard, and jerking; seldom exceeding ninety or a hundred in the minute; the surface is warm; the tongue dry, red, and polished; drowsiness succeeds, and if the remedies fail to relieve, goes on increasing until it terminates in profound stupor, loud sterterous breathing, deep sleep, and death. The treatment consists of repeated bleedings, purgings, blisters, and sudorifics.

*General irritation*, and that excessive, has succeeded collapse; owing probably to general congestion, and accumulation of blood in the large vessels: this is often accompanied with unbearable local pains. We can only alleviate such sufferings; for, unhappily, death is the ordinary termination.

## SECTION VI.

### ON THE GENERAL TREATMENT OF THE FEBRILE STAGE.

The fever attending this stage is decidedly of an inflammatory nature; our attention should therefore be particularly directed to the state of the brain and the mucous membrane of the intestines. Of internal medicines, calomel and antimonial powder are foremost, given at occasional intervals, accompanied with mild laxatives, of castor oil or magnesia; should the head be affected with pain, local bleeding from the temples, blisters to the nape of the neck, and cold lotions to the shaved scalp; if there be vomiting, and tenderness in the epigastrium, leeches and subsequently a blister, will be the most effectual plan of treatment.

General bleeding from the arm should be resorted to, if the pulse be full and hard; if there be coldness of the extremities and imperfect development of heat, hot bottles and hot flannels should be applied to the parts, and a moderate but careful administration of stimulants, such as carbonate of ammonia, camphor, &c.

Cases are occasionally met with so mild in all their stages, that the fever requires no farther

medical treatment than a few leeches to the head, a little laxative medicine, and abstemious diet for a few days.

It is necessary that every care and precaution should be most rigidly observed, whilst convalescence is proceeding. Nurses, as well as patients, should be solemnly admonished on this head, and more particularly on that which relates to dietetic irregularities—a subject of great importance; for during this stage of amendment, a peculiar morbid voracity of appetite occurs, often very difficult to control, and hurtful beyond measure, if indulged.

Relapse, in this disease, is of serious consequence, and some melancholy and painful cases are recorded of a calamitous termination, when there appeared every pleasing prospect of a speedy restoration to health.

## SECTION VII.

### MEANS OF PREVENTION.

HAVING already stated that "free currents of air, cleanliness, space, bodily health, and a cheerful mind," are insisted on as the safeguards against spreading epidemics, it only remains that the Boards of Health should be vigilant and decisive, and more particularly so upon the visitation of the disease.

Among the investigations of Dr. Russell and Dr. Barry, the question of contagion seems to be but little, if at all, affected; but remains a matter of individual opinion, which any one is competent to satisfy himself upon, from all he can learn.

This question is sufficiently difficult and complicated, and perhaps of little importance, but as one of national interest, so far as the interdictions of quarantine; for, probably, nothing short of a wall, as high as the atmosphere of our globe, will ever prove an effectual barrier to the invasion of this or any other epidemic.

In the ORDER IN COUNCIL, it is proposed, that "every large town should be divided into districts, having a district committee of two or three gentlemen, one of whom should be of the medical

profession, to watch over its health, and to give the earliest information to the Board of Health in the town, whose instructions they will carry into effect.

"The most effectual means of preventing the spreading of any pestilence has always been found to be the immediate separation of the sick from the healthy: it is of the utmost importance that the very first cases of Cholera which may appear should be made known as early as possible. Concealment of the sick would not only endanger the safety of the public, but (as success in the treatment of the Cholera has been found mainly to depend on medical assistance having been given in the earliest stage of the disease) would likewise deprive the patient of his best chance of recovery.

"To carry into effect the separation of the sick from the healthy, it would be very expedient that one or more houses should be kept in view in each town or its neighbourhood, as places to which every case of the disease, as soon as detected, might be removed, provided the family of the affected person consent; and in case of refusal, a conspicuous mark SICK should be placed in the front of the house, to warn persons that it is in quarantine:—and even when persons with the disease shall have been removed, and the house shall have been purified, the word CAUTION should be substituted, as denoting suspicion of the disease:

and the inhabitants of such house should not be at liberty to move out or communicate with other houses until, by the authority of the Local Board, the mark shall have been removed.

"In some towns it may be found possible to appropriate a public hospital to this purpose.

"The habitations from which the sick have been removed, should be thoroughly purified.

"Decayed articles, such as rags, old clothes, hangings, should be burnt; filth of every description removed; clothings and furniture should be submitted to copious affusions of water, and boiled in a strong ley; drains and privies thoroughly cleansed by streams of water and chloride of lime; ablution of wood work should be performed by a strong ley of soap and water; the walls should be hot lime washed; and all loose decayed pieces of plastering should be removed.

"Free and continued admission of air to all parts of the house and furniture should be enjoined, for at least a week. It is impossible to impress too strongly the necessity of extreme cleanliness and free ventilation.

"Nurses who attend Cholera patients should live apart from the rest of the community.

"The name and residence of each of the members of the district committee should be placed in some conspicuous place.

"The poor, ill-fed, and unhealthy part of the

population, and especially those who have been addicted to strong liquors and indulgence in irregular habits, have been the greatest sufferers. The infection has been most virulent in the districts of towns where the streets are narrow, the population crowded, and where little or no attention has been paid to cleanliness and ventilation."

Such is an extract from the ORDER IN COUNCIL. The Lords of the Committee conclude by stating, "They are aware of the difficulty of removing the evils referred to, but they trust the attention thus awakened will ensure the most active endeavours of all magistrates, resident clergymen, and persons of influence or authority, to promote their mitigation; and as the amount of danger and the necessity of precaution may become the more apparent, they will look with increased confidence to the individual exertions of those who may be enabled to employ them beneficially in furtherance of the suggestions above stated."

In quoting so largely from the Order in Council, it has been with a view of connecting all the precautionary measures which may be useful when forming Boards of Health. These measures are founded strictly upon the supposed infectious character of the disease; a circumstance which has at all times produced the greatest alarm. Since their publication, however, there is abundant testimony

afforded us, that the disease is not wholly communicable from the person, but depending upon such contingencies as air, exhalations, &c.

The Swedish Society of Physicians, in their instructions respecting Cholera, observe, that the disease is of such a nature that it is easier to prevent than to cure, as it attacks those only who are predisposed to it; and such disposition may be avoided by attending to the following rules:—

"To be moderate in food and drink—to avoid indigestible or spoiled food, unripe or spoiled fruit, raw vegetables, &c.—to watch over the state of the skin, and not to check perspiration—to choose such clothing as is adapted to the season and the weather—to keep the feet dry and warm, and either to wear a flannel near the skin, or at least a flannel bandage round the abdomen—to study the utmost cleanliness—to keep the room well aired—and to avoid whatever can corrupt the atmosphere—to take daily exercise in the open air—if you come in contact with a cholera patient, to bathe your hands and face, and rinse your mouth with vinegar—to call in medical assistance the moment you begin to feel yourself indisposed, and above all, to keep your mind cheerful and not to fear the distemper. Experience has shown that by observing the above rules, a person may without risk discharge the sacred duty of assisting his fellow creatures in case of illness, *while they who live in*

*constant apprehension* of being attacked by the disease more easily fall a prey to it."

It is much to be lamented, that fear becomes so rife during the prevalence of Cholera; fear used for the sake of caution is good, because it keeps people from taking liberties with their constitutions, renders them guarded in their diet, and forces attention to their health. But when fear paralyses every effort of the mind, and operates with a painful and invincible dread of the disease, it becomes a powerful and pernicious source of debility in the human frame, rendering it susceptible for the admission of any prevailing epidemic, be that epidemic what it may.

So painfully subduing is the sensation of fear, that often no exertion of the mind, however active and vigorous, will serve to banish its depressing effects. When this occurs, it is highly desirable, as a mode of precaution, that they who become thus affected, should remove themselves from the tainted source of infection; for the mind can never resume its elasticity and confidence within the sphere of desolation and of death.

## SECTION VIII.

### ON THE PROXIMATE CAUSES OF CHOLERA.

This is a subject replete with difficulty and embarrassment; it has already exercised the ingenuity of a host of pathologists, and notwithstanding the unusual zeal and diligence which they have displayed, it is melancholy to observe, how little we still really know of the origin of those physical operations which destroy life with such frightful rapidity: of this, however, we are assured, that no re-action of the arterial system can ever take place, so long as the *diarrhœa* continues; and that when bile appears in the dejections, the alvine matters will become concocted and retained, and the malignant character of the disease becomes changed, and thus it is often, eventually, subdued.

In every quarter of Great Britain, and more particularly wherever the disease has manifested itself, highly important facts, together with well matured observations and the results of practice, have been registered and communicated in a valuable correspondence with the Central Board of Health. A profusion of monographs have also been published on the subject, some of which are very meritorious and excellent. These are labours

which amply testify a strong and ardent desire, on the part of the profession, to struggle successfully with this new pestilence, by endeavouring to arrive at some just conclusion with respect to its causes. But so far, no theory has received more than a partial assent, as accounting for the complex train of symptoms which accompany the disorder; nor has any *absolute* principle of treatment been laid down that furnishes a key to the operation of the various remedies which have been hitherto employed with apparent advantage. Both the nature and treatment of Cholera are still involved in a mist of doubt and uncertainty; the most skilful research has failed to throw more light than that of probability on the one, nor has acute observation and experience in millions of cases been more successful in *decidedly* establishing the other.

No cause seems to be so universally assigned for the production of this disease as a peculiar and specific distemperature of the atmosphere; and this opinion derives the greater credit from the belief that other epidemics are produced in a similar way; for it appears with greater certainty at the season when autumnal intermittents and remittents prevail.

The description given of it by Celsus in the first century, and by Sydenham a hundred and fifty years ago, is applicable, in many of its symptoms,

to the disease under our consideration: it has raged with greater intensity at the same period of the year, and in every instance, it has been subservient to the laws of epidemics in general. Sydenham says, that Cholera Morbus makes its appearance at the approach of autumn with as much certainty as swallows at the beginning of spring. He describes the disease "to be occasioned by a surfeit, for there are violent vomitings, and an evacuation of ill humours, with great difficulty and trouble by stool, violent pain and inflammation of the stomach and bowels, a heart burning, thirst, a quick pulse with heat and anxiety, and often a small unequal pulse, with nauseousness, and a colliquative sweat, contractions of the arms and legs, fainting, a coldness of the extreme parts, and such like symptoms, which frighten the by-standers and kill the patient in twenty-four hours."

Such is the description afforded us by this celebrated physician, of the Cholera Morbus, as it appeared in 1669; but the features which present themselves in this newly-imported disease, however similar in many respects, differ materially in their character and malignity.

Dr. Lawrie, of Glasgow, in his view of the pathology of Cholera, states the proximate cause "to arise from a morbid poison which enters the system, impresses the nerves of the mucous mem-

brane of the stomach and bowels, and forces the capillaries to discharge the serous portion of the blood, and the salts which it holds in solution; the pulse fails, because there is too little blood in the system; the lungs, because the thickened blood no longer finds its way into the capillaries of their air cells; the skin becomes cold, because respiration and capillary circulation are imperfect; the secretion ceases, because the glands have no longer *materiel* on which to act."

Dr. Wright, in his view of the proximate causes of Cholera, refers the whole to a train of symptoms excited by a given influence on the ganglionic system of nerves: his theory is very ingenious, and he has adopted the synthetical mode of argument by enumerating the various morbid effects consequent upon the diseased functions of these nerves. The whole of the phenomena thus produced are in strict accordance with the symptoms of the disease, from its commencement to its appalling termination. Should, then, the proximate cause of Cholera be found to originate in some peculiar morbid state of the nervous system, (and it is not unreasonable to presume it does) this epidemic may be contemplated as one of the same class as those which are engendered by malarious infection.

In the cold and shivering stage of an intermittent fever, we observe symptoms not far remote in their character and appearance from those

which present themselves in the collapsed stage of Cholera; with this exception, that, in the latter instance, the arterial circulation is nearly wholly suspended, and the vital powers become infinitely more feeble. There certainly does exist some analogy, not only in the peculiarity of the cold stage in each, but in the slow and insidious manner in which the malarious poison is imbibed, and by each of the diseases acquiring greater intensity and malignancy in the same impure localities where the seeds of infection are always more or less rapidly disseminated.

In the intermittent fever, it is not improbable that the cerebral nerves may be the first to communicate the phenomena of that disease; while in the Cholera, the ganglionic system may become impaired through the medium of the bowels.

The serous purging is now considered characteristic of the disease; so much so that most practitioners hesitate in pronouncing that to be Cholera, when this symptom, in conjunction with failure of the pulse and capillary circulation, is absent. The purging, it should be remarked, is always unaccompanied by griping pains, and the immediate sensation is that of ease and relief. Whoever has once carefully observed the countenance, and the remarkable expression of the eye in those affected after every evacuation, will not forget the indescribable langour and the utter state of dejection which is there depicted.

Ignorant as we are of the mysterious operations of the proximate causes of Cholera, and in the absence of any plausible theory whether it be meteorological or chemical, the disease has always been found most severe and fatal in its character wherever there existed a vitiated atmosphere, and where no attention has been paid to personal cleanliness and ventilation.

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## SECTION IX.

### IS CHOLERA CONTAGIOUS?

In the celebrated dispute between the two knights, whether the shield was of gold or of silver, we have some illustration of the manner in which the question at the head of this section should be considered. It is rendered a subject of vital importance as concerns the welfare of our fellow creatures, and it behoves all, who venture to offer an opinion, first to view it in all its bearings with the utmost caution and impartiality. Happily, the zeal and the anger of party discussion has blown over; and we can quietly contemplate the introduction and dissemination of Cholera in this country, as we should do any historical event, and dispassionately weigh the phenomena attending it. It is also

gratifying to be assured, that the views entertained by the rational and intelligent members of the profession are less hotly contested than they were wont to be; and that the subject, no longer one of virulence and controversy, has sunk into the calmness of impartial truth.

It is the invariable custom to adopt salutary and precautionary measures wherever the disease breaks out in a community; and this strongly implies, that it is universally considered to be of a contagious nature: it is therefore wise to persevere in the use of these measures so long as we remain ignorant of the true nature of the poison—we know nothing of its essence nor secret lurking-place; but of this we are incontestibly assured, that, by our labour and diligence in cleansing, purifying, and administering to the pressing necessities of the poor and the wretched, we mitigate its virulence, lessen its infectious aspect, and successfully grapple with its fearful and deadly malignity.

We read that many medical enquirers, zealous for the advancement of knowledge and the welfare of mankind, have voluntarily and experimentally placed themselves in close contact in the bed with the dying and the dead of Cholera; have there inspired profusely the breath of their departing patients, have inoculated themselves with the blood, perspiration, and other fluids of those infected,

have endeavoured, in every imaginable way, to impregnate themselves with the poison of this pestilence, and with very few exceptions, indeed, these adventurous philanthropists sustained no injury from their remarkable experiments.

The cases of infection among these persons and others subjected to the influences of an atmosphere charged with cholerous exhalations, are not very numerous; and though they may be admitted as fair evidence of the infectious nature of the disease, yet, may they not also be justly contemplated as exceptions to a general rule. Dr. James Johnson, who is good authority, and whose rational examination into the merits of this intricate question deserves every praise, steers a middle course between the exclusive contagionists and anti-contagionists, from his conviction that diseases arising from ærial and terrestrial influences have, in the hovels of the indigent, in crowded populations, in concentrated filth, and in the absence of ventilation, taken on a character of infection or communicability, which they did not originally possess, and of which they were quickly deprived, under opposite and favourable circumstances.

Dr. Lefevre, physician to the British Embassy at St. Petersburgh, very prudently declines giving a positive opinion on the contagious character of Cholera, until he has obtained farther experience: and although he did duty, in rotation, at one of

the largest Cholera Hospitals, and had ample opportunities of observing its mode of propagation, he states, "such as I have lately witnessed it, I am bound to say that I have no rational grounds for believing it to be contagious." This physician seems to be duly impressed with the disastrous circumstances which would arise in all communities by a belief in the contagious properties of the disease; and further observes, "from the dread which was then prevalent, many deserted their posts in the hour of danger, fled from the city in the day of her trouble, and shut their doors to all who had communication with her." He contrasts the blessed effects produced in those who abandon the doctrine of contagion, and quotes the following facts:—that "he was personally acquainted with a nobleman, who, upon hearing of the Cholera having reached Petersburgh, left his country seat at a long distance from the capital, hurried up to town, and was to be found from morning till night acting the good Samaritan, with as pure and disinterested intentions as his prototype of old."

Confidence like this adds much weight to the advantages of the doctrine of non-contagion; it lessens our apprehension, and may serve to stimulate the opulent to exert themselves with proper philanthropic feelings.

We may here pause, and contemplate the circumstances which probably render the disease

contagious; and if so, at what period or stage of its progress it may prove more infectious than at another. I have before observed, that ventilation and cleanliness are of paramount necessity, whenever or wherever this disease prevails; and that the same precautions are of equal importance in typhus fever, in small-pox, or in any other acknowledged infectious disorder. Remove the filth, and place the patient in a convenient situation for free ventilation and pure air, and Cholera becomes not more infectious than typhus fever, &c.; the infection thus seems to depend upon a contingency—take away the contingency, and infection is destroyed. It is generally acknowledged, that the disease is not absolutely infectious until it assumes the febrile or typhoidal stage; and, indeed, at this period, it is not unreasonable to presume, that the morbific emanations from the body, have equally the same contagious principle as they are known to possess in all low fevers, and which bear a similar type. Nevertheless, we have not sufficient grounds for considering this febrile stage of Cholera to be more infectious in its nature than what is usually said to attend *other contagious fevers*, and to which I have already alluded.

In examining the reports of a number of Cholera Hospitals, I find that the disease is rarely propagated by the patients to the nurses and attendants; and this may arise from the superior ventilation

and cleanliness in these institutions, together with a proper and due precaution which is observed on the part of those who have the care and charge of the sick. In the instances where infection has taken place among them, it is not unreasonable to presume, that the poison may have been imbibed from the self-same source as that which may have infected others.

Dr. Lichtenstadt, in an able work communicated to the Russian Government, denies the propagation of the disease from the person, "neither," says he, "can it be communicated by household goods or articles of food, or by touching those ill of Cholera." This physician has often remained for a long time by the bed side of the sick, examining the pulse, and making other enquiries, &c.; he has held the hand bedewed with the death-sweat, and inhaled almost the last breath of the patient, and yet he never experienced the slightest attack of the disease. The only precautions he used were—he never went abroad fasting; during his stay, he never swallowed his saliva, and always washed his hands with pure vinegar; he adopted no precautions with regard to furniture, and abandoned the use of chlorine in his house or about his person; he has known people wear the clothes and sleep in the beds of those who had died of the disease, without producing any ill effect whatsoever.

Contrasted with these observations, there are

many writers of the greatest celebrity who contend that the disease *is* contagious. That it *is virulently epidemic* there can be no doubt, for no principle of contagion can account for the remarkable and sudden spread of the disease over the whole world—attempts are often made to trace the first case from some suspected source, and proofs are often assumed upon the most uncertain evidence; but the further progress of the disease baffles all our calculations, and the contagionist is obliged to seek shelter in the admission that it is both epidemic and contagious.

It has been advanced, that choleric emanations are wafted from place to place by certain winds, from its strange and fitful visits over all parts of the globe—sometimes disseminated rapidly, sometimes slowly, and the disease appearing in the same type at different places, with greater or less mortality, we would infer that there appears in this notion some degree of probability. In India, the rapid transition of the disease is very remarkable; for it is sometimes said to sweep along the surface of the earth with appalling rapidity, attacking indiscriminately the rich man in his insulated palace, and the poor man in his lonely and desolate hut.

Whatever be the nature of this mysterious disease, let us not be overcome with any fear of its contagious character; and more particularly, as its nature is not unequivocally concluded to be so,

lest we endanger the comfort of the sick, and lessen the confidence of the attendants. Our medical brethren have at all times proved themselves zealous and undaunted; and surely, on theoretical grounds only, they will not shrink from the performance of those duties to their neighbours and fellow-men which the mild Hindoo and apathetic Musselman have fulfilled with alacrity.

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## SECTION X.

### ON THE USE AND APPLICATION OF DISINFECTING AGENTS.

It has been already remarked, that crowding, filth, and imperfect ventilation, favour the propagation of contagious diseases; and there is every reason to believe, that all the infectious fevers of this country are not only aided in their diffusion by these circumstances, but may actually be produced by them. We often see in epidemic seasons fevers not traceable to any other source, springing up in the abodes of the poor, apparently affected by the concentration of human effluvia and the decomposition of animal and vegetable recrements, and which eventually are found to possess a contagious character when thus engendered.

This mode of generation is found to take place

in seasons of scarcity, where physical privations and the depressing passions render the poor a more easy prey to disease, by depriving them of the moral energy required to preserve order and cleanliness in their dwellings; whilst the want of clothing and fuel leads them to block up every chink and aperture by which fresh air might gain admittance.

To facilitate the means of correcting all sources of contamination generally, I have appended the following rules and observations upon the manner in which disinfection is usually performed, not simply with a reference to any impurity which may arise from Cholera, but to an extended application of them under every circumstance of a tainted and corrupted atmosphere. It may not be improper here to allude very succinctly to the rules which are usually observed for preventing the propagation of contagious diseases, and which consist chiefly in the separation of the sick from the healthy, as far as may be consistent with humanity: cleanliness of the person of the patient, and the apartment, together with free ventilation of air; the immediate immersion in hot water and the subsequent washing of all clothes, linen, &c. removed from the person; avoiding on the part of the attendants, needless and long-continued proximity to the sick; inhaling their breath, and standing in the current of air which passes over them, and also

in the supporting of the general health of the attendant, by nutritious diet, and by the enjoyment of such bodily rest as nature may require.

However variable the sources of contamination, the means which have been resorted to for their correction are reducible to three heads. 1st, Diluting with pure air. 2d, The introduction of certain gaseous matters. And 3d, By washing cleansing, and exposing to the air, and to disinfecting agents, solid matters, such as bed and body clothes, furniture, and walls of apartments.

1st.—Diluting with pure air merits the most confidence; and without which all other means are nugatory.

2.—The decomposition of infecting particles is attempted in various ways: by large fires, which were formerly kindled in the streets of towns when pestilence was prevailing; the firing of gunpowder; fumigations with certain aromatic substances, as camphor, turpentine, &c.; these possess more the merit of disguising unpleasant odours, and are superseded by measures deemed more scientific.

Quick lime, thrown into drains and privies and into the graves of those who died of some prevailing pestilence, will absorb miasmata; in apartments, it is best applied in the form of hot whitewash upon the walls.

Acids.—Linen and paper are sometimes dipped

into vinegar; but the vapours from various mineral acids are more generally used.

Muriatic acid was first employed by Guiton Morveau, to disinfect the principal Church of Dijon in 1773; the air of which had become contaminated by the emanations from the vaults below, and utterly unfit for public worship.

Vinegar, aromatics, and the deflagration of nitre had no effect; but the vapours arising from six pounds of common salt, with two of concentrated sulphuric acid, deprived the air in one day of all unpleasant odour, and in four days afterwards worship was resumed. With this also he disinfected the prison of Dijon, whither fever had been imported from other gaols, of so malignant a nature that thirty-one prisoners perished.

The proportions recommended are twelve parts of sulphuric acid to fifteen parts of common salt, which should be slightly moistened before the acid is poured upon it. This should not be used in rooms inhabited.

Dr. Carmichael Smith received a liberal parliamentary grant, for introducing nitrous acid fumigations: these consist of equal parts of nitric and sulphuric acid; half an ounce of each will be sufficient to disinfect a room of ten feet in each dimension. If used for larger apartments, the cups or saucers for the ingredients should be multiplied, rather than using one too large.

Oxygenated muriatic acid (chlorine) is an excellent disinfecting agent; and of late, M. Labarraque, a French apothecary, has prepared a solution of it, in combination with lime, forming the chloride of lime; this is obtained also in the form of powder. The floors of apartments may be freely sprinkled with the solution, and sheets wet with it may be suspended in various situations. It may be poured into drains, privies, or night chairs, which emit an offensive odour; and foul sores may be washed with the liquid chlorade of soda diluted in rose water.

Dr. Henry, of Manchester, has recently performed a series of experiments, which seem to prove that the fomites, or materials impregnated with the infectious principles of contagious diseases, may be rendered inert by exposure to elevated temperatures. His experiments fully prove that linen worn by persons in typhus fevers, and by children in scarlatina, have by these means been wholly disinfected. His apparatus is simple, and consists of two vessels of copper, between which steam is introduced.—A full description of the apparatus with a plate, is to be found in the "Philosophical Magazine and Annals of Philosophy," for *January*, 1832.

## SECTION XI.

### ON THE FORMATION OF CHOLERA HOSPITALS, THE NECESSARY FURNITURE AND MEDICINES.

It is of considerable importance that in all towns, and more particularly those in which Cholera has once appeared, there should be some convenient building appropriated for this specific purpose: to establish these institutions during the prevalence of the disease, has been found by experience to create considerable panic and confusion, and thus they often prove of little use or benefit to a community. A private dwelling, school-room, or a dry barn may speedily be converted into a commodious place for this purpose: if possible, it should have two sets of wards; one for the reception of those in the state of collapse, and a second for those in the febrile stage. The furnishing should consist of iron bedsteads, about three feet wide; mattresses, of coarse cloth, stuffed with kiln-dried straw; sheets, and an abundance of blankets. When a patient dies, the straw should be burnt, and all the bedding well washed. Each ward for the reception of patients in the stage of collapse, should have a stove and a large fire-place,

to keep up a high temperature, and enable the nurses to procure with facility the means of applying external heat. In this disease assiduity will often supply the place of skill, and proper measures are more likely to be adopted when the means of applying them are at hand, than when they require to be sent for. If possible, each hospital should contain accommodation for a resident surgeon and nurses.

The hospitals should be selected in the most airy situations, and yet as near the centre of districts which are liable to be affected as possible. The patients should be conveyed on litters, by means of poles on men's shoulders, and enveloped in an ample supply of warm blankets, and the heat should be increased by the applications of tin vessels or bottles filled with hot water.

If the weather is cold and the hospital distant, and more particularly if the stage of collapse has set in, the danger from removal is considerable in such cases; and if comforts can be procured at home, it is advisable that the patients should be attended at their own houses: and indeed, it is not altogether unworthy of the attention of Boards of Health and committees appointed to visit the houses of the poor, to aim as much as they can towards supplying proper comforts and nursings at home. If they are enabled to accomplish this with *any degree of perfection*, they will certainly

contribute in a great degree to the preservation of life; and it will be found in some cases to be greater than by the best hospital arrangements which can be devised.

But the habitations of the poor rarely admit of home treatment, and we are often foiled in our utmost endeavours to save the patient, from the want of the numerous conveniences and contrivances with which most Cholera Hospitals are furnished; otherwise, there is much fatigue, disturbance, and exposure attendant on the removal of patients, and, consequently, a delay in the use of remedies.

With these observations, I proceed to append an inventory of the necessary furniture and utensils, together with such remedies as may be required for the fitting up of a Cholera Hospital.

## THE FURNITURE SHOULD CONSIST OF

Iron bedsteads.

The beds should be made of chaff, or kiln-dried straw, and put up without hangings.

Blankets, flannels, and warm woollen rugs.

A fountain for hot water, and boilers for the same.

A steam couch.

A vapour bath.

A variety of flat tin boxes, to contain hot water, adapted for application to various parts of the body.

A hot bath, hip baths, and foot baths.

Inhalers.

Flannel pouches, to contain heated salt, sand, or oats.

Enema syringes.

Pewter bed-pans and urinals.

Spirit lamps.

Earthen bottles for hot water, and earthen retorts for the preparation of gases, &c.

## THE MEDICINES ARE

Calomel.
Opium.
Capsicum in powder.
Camphor.
Croton oil.
Cajeput oil.
Castor oil.
Vinegar.
The mineral acids.
Spirits of turpentine.
Essential oil of peppermint.
Spirits of wine.
——— ammonia.
Mustard.
Cantharides.
Lime.
Chloride of lime, in powder and solution.
Chlorade of soda.
Blistering ointment.
Laudanum.
Batteley's sedative drops.
Black drop.
Strong liniments of ammonia and of camphor
Strong mercurial ointment.
Oxymuriate of mercury.
Phosphorus.
Tobacco.
Carbonate of soda.
Common salt.
Oil of amber.
Spirits of nitre.
Rhubarb.
The compound tincture of ditto.
Magnesia.
Compound powder of chalk.
Tincture of catechu.
Ginger.
Sulphate of zinc.
Sulphate of copper.
Leeches.—and
Cupping instruments.

In the appointment of a Cholera Hospital, abundant opportunities will present themselves for Medical men and Boards of Health to select such requisities as may be deemed necessary: I have inserted this list in the hope of its being some guide for that purpose.

## A BRIEF ACCOUNT OF THE CHOLERA AT DENBIGH.

In the summer of 1832, the disease broke out in Denbigh, when upwards of one hundred persons sickened, and fifty-three perished; being more than one half—a mortality far exceeding the usual proportion of those who became its victims, when compared with the registers of the disease as it appeared in most other places bearing a similar proportion of population. Our reports were made up with great caution and accuracy, and no case was recorded which did not exhibit some leading and indisputable feature of the epidemic.

As a question, purely of local interest, it may be proper that I should state in what manner it was palpable to us, that the disease commenced. In the first fatal case it was contracted by a female residing in the country, engaged to wash the linen of a townsman who at that time was recovering from severe illness, and which was not suspected to be more than a highly aggravated case of bilious vomiting and purging. He however, had recently returned from Liverpool, where the Cholera was then raging with considerable fatality, and, subsequently, a strong suspicion arose in his mind that he must there have contracted the disease.

Shortly after the death of this poor washer-woman, a relative, who had very sedulously perpormed the office of nurse and attendant upon the deceased, and who also took upon herself the charge of washing and of laying out the body, sickened and died. This was the first fatal case which occurred in Denbigh, and the street in which she resided became a spot specially marked, where the disease was disseminated rapidly from house to house, destroying the inmates with unsparing malignity: in two or three instances, every member of a family died.

It is necessary that I should describe the locality in which the disease chiefly manifested itself. It was inhabited principally by the poor of the town, and from the reports then made by the district visitors to the Board of Health, we learned that many of them were destitute, for the most part, of the common necessaries of life, and were otherwise in a wretched state of poverty.

I must also observe, that in the immediate vicinity of this spot there are several skin-yards which are situated on a somewhat higher elevation, and from which the exuvia, together with the outpourings of drains and privies, are conveyed by a stream of water, of itself impure, and which flows under the adjoining premises alluded to: occasionally after heavy rains, the lower parts of the street becomes inundated, and much of these impurities

must obviously be exposed to evaporation: a process which must materially deteriorate its healthiness, and more particularly when connected with another fact, that, in former years, a considerable portion of this ground formed the site of an ancient skin-yard.

The presumption, therefore, is strong that the surface richly saturated with dead animal matter and other impurities, should possess in a high degree the materials which would engender an epidemic, and probably increase the malignancy of contagion: these facts may in some measure illustrate in what manner this spot became the peculiar resting-place of the disease, and may afford some reason for its remarkable fatality.

I must also mention that the population was in a state notoriously favourable for the reception of the epidemic; for here indeed were found objects whose constitutions were lowered by poverty, and whose standard of bodily health was incapable for its resistance.

It is much to be lamented, that in the midst of this appalling visitation, some few died from the incautious and excessive use of ardent spirits; a practice highly reprehensible and exceedingly dangerous, to which many, under similar circumstances, are very prone to resort, in the vain and delusive hope of its proving to them a protection from the disease.

A spacious Cholera hospital was gratuitously provided by a charitable and benevolent townsman,* and every accommodation for the reception of the patients was promptly attended to; but unhappily, great reluctance was evinced on the part of the sick to be conveyed thither, notwithstanding every kind entreaty and the most humane solicitations that could possible be urged. Out of one hundred and three cases, only seven were admitted into the hospital, six of whom died.

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### CHOLERA AT ST. ASAPH.

In the month of *August*, 1831, the disease appeared at St. Asaph. It is not very accurately ascertained where it commenced, but its first victims were aged and infirm paupers residing in the alms'-houses;† immediately opposite to these buildings, is an enclosed area containing the wretched dwellings of paupers and of others who are in the constant habit of receiving strollers of every description into their houses, as night lodgers.

* J. C. Williams, Esq.

† The *spontaneous origin* of Cholera, under a general epidemic influence, has been very satisfactorily explained in several well-authenticated instances.

If there be any truth in the notion, that the seeds of infection can be conveyed by persons of this description, it is not unreasonable to presume that the first vitiating spark proceeded from this quarter.

After the death of these two aged residents in the alms'-houses, the disease became more manifest, rapidly extending itself from house to house, destroying many in its frightful progress, until at length it proceeded to other quarters of the city, where its character became less malignant, and its victims considerably decreased in number.*

In conclusion, and as I have before observed, it is invariably the nature of this singular disease to appear with more virulence and fatality in a community wherever the greatest impurities exist: and this fact is strongly corroborated in the two instances which have so recently occurred both at Denbigh and at St. Asaph.

It has frequently been observed to me by my friend Mr. Bythell, that there existed peculiar and certain sources of unhealthiness in the neighbourhood in which the disease became most fatal; and I am now very painfully reminded how true and prophetic his observations on the subject have proved to be. Upon a former occasion, but of a much less formidable visitation of the disease, he

* From the Report of the Board of Health, we learn, that out of twenty-four cases eighteen died.

directed public attention to some old and exceedingly offensive drains, which passed under and were immediately contiguous to the houses in which the epidemic so recently appeared; and, in accordance with this recommendation, the Board of Health at St. Asaph instantly gave directions that they should be cleansed and purified: during the progress of these operations, there were discovered numerous sources of filth, and many ramifications of ancient drains, which, upon examination, were found to be extremely difficult to pursue. It was always observed by the inhabitants in this neighbourhood, that, upon the slightest atmospheric variation, there emanated from these foul depositories, the most fetid and loathsome vapours, frequently pervading every apartment in the houses alluded to, but more particularly those upon the ground floor.

I have been thus minute and particular upon the *sources*, which in all places are alike, and under every similar circumstance, seem to afford greater facility to the influences of contagion; for in viewing and tracing the history of this disease universally, the sole and undisputed fact of *impurity* is the prevailing and the predominant opinion.

Nothing could exceed the exertions and the promptitude with which the Board of Health at St. Asaph directed its operations. The most

liberal subscriptions were made for the benefit of the necessitous and the indigent. A Cholera Hospital was speedily furnished, and every other means which humanity and philanthropy could suggest, were put into active operation for the relief and comfort of the afflicted and destitute.

# APPENDIX.

EPIDEMIC CHOLERA has again reached the shores of this country, and Boards of Health, together with Sanitory Committees, are labouring with genuine philanthropic anxiety, to disarm the visitation of much of those former evils which unhappily caused so much fatality to our population. We are therefore called upon to reconsider all former measures which were adopted to arrest its progress, and to examine predisposing causes which determined its localities, and the class of persons attacked, to point out the best course to be pursued, and thus lessen, as far as may be, all fear and apprehension.

"It is not quarantines and *cordons sanitaires*, that bar out the disease, but a cleanly people and uncontaminated air. The evil which springs from the bosom of Nature only needs for its removal an observance of the rules which Nature herself reveals."

It is almost unnecessary to allude to those universal maxims of cleanliness which are now enforced with an unexampled degree of legislative peremptoriness, viz. that wherever damp, mois-

ture, filth, animal and vegetable matters in a state of decomposition, and, in general, whatever produces atmospheric impurity, either in or out of dwellings, have the effect of lowering the tone of health, poisoning the vigour of the system, and rendering the body an easy prey, not only to Cholera, but to every other variety of epidemic disease, be its specific character what it may.

It is well known how fearful were the epidemics of the middle ages; in fact, so fatal and destructive, that the population of England was kept down by repeated visitations of pestilence, and, consequently, its social progress retarded to an extent incalculable. "If," says Dr. Laycock, of York, "throughout all England the Cholera of 1832 had been one half only as fatal as the black death of 1349, or even as several of the later epidemics, the frame-works of society would have been loosened, and the empire in danger of being broken up." At that time, be it observed, how deficient were the architectural arrangements of the towns, and the utter want of cleanliness: the floors of houses generally were made up of nothing but loam, and strewed with rushes, which being constantly put on fresh, without a removal of the old, remained lying there, in some cases for 20 years, with fish bones, broken victuals, and other filth underneath, impregnated with the exuvia of animals and man. We are thus presented with a

fact no less formidable than it is true, of the fatal effects resulting from inattention to cleanliness, and we are much cheered and consoled in the prospects of exemption from fatality held out, by this simple yet effectual measure, if zealously and industriously enforced.

It is quaintly observed that cleanliness is next to godliness; and Science, as the handmaid of Divine Truth, has thus afforded to us irrefragable evidence of its blessings. Therefore, in the Official Circular from the General Board of Health, "Householders of all classes are warned that their first means of safety lies in the removal of dung-heaps, of solid and liquid filth of every description, from beneath or about their houses and premises; and though persons long familiarized to the presence of such refuse may not perceive its offensiveness, nor believe in its noxious properties, yet all who desire to secure themselves from danger should labour for their entire removal."

There is one remarkable fact attendant upon the visitation of Cholera, and should be constantly borne in mind, that the epidemic presents itself in a variety of forms, and that its nature is considerably modified by the constitution of the locality, and the *state of the people* attacked. Much valuable information is given on this head in the Commissioners' Report on Public Health, which refers to the prevention of disease, and the preser-

vation of health in our large towns; impure and humid air, unsuitable clothing, ill-constructed dwellings, and insufficient warmth or protection against cold. The want of proper food, it is argued with justice, is an agent of very inferior power, to the habitual respiration of impure air: it is also affirmed, that in the present state of most towns and cities, the number of persons whose constitution is enfeebled by want of food, compared with the number of persons whose constitution is enfeebled by want of pure air, is found to be an exceedingly small minority, an assertion which is borne out to a certain extent, at least, by the fact that the population contrives to spend 24 millions per annum on ardent spirits, and nearly an equal amount on tobacco and fermented liquors.

Cholera is not the only fatal visitant to be contended with in *crowded and impure localities*, however fearful it may revel in its work of death; but with precisely the description of persons, and under the same circumstances, typhus fever, measles, and small pox, assume a putrid type, and an equal, if not greater fatality ensues.

Thus we perceive that the highest degree of susceptibility is produced where there is habitual respiration of impure atmosphere, where people live irregularly and at the same time filthily; and, on the contrary, that in places in which a great

degree of cleanliness is maintained, and carefulness in the mode of living is practised, the poor as well as the rich enjoy exemption from disease.

POPULAR DIRECTIONS AND MODE OF TREATMENT.

The best and safest are contained in the "Official Circular of Public Documents and Information, directed by the General Board of Health," which I shall proceed to give in a very condensed form. Should the disease unhappily break out in any district, it is essential to the safety of the inhabitants that they should be fully impressed with the importance of paying instant attention to the premonitory symptom, which is relaxation of the bowels, and which, if promptly attended to, the patient generally recovers, but if neglected, spasmodic attacks ensue, and he is lost. The most simple remedies will suffice if given promptly and early: the following is regarded as among the most useful, viz.—Twenty grains of opiate confection, mixed with two table spoonsful of peppermint water, or weak brandy and water, repeated every three or four hours, or oftener, until the relaxation is stopped; or, an ounce of compound chalk mixture, with 10 or 15 grains of aromatic confection, and from 5 to 10 drops of laudanum, added to which a drachm of catechu tincture, if the attack is severe, repeated in the same manner. Half given to young persons, and still less to

infants. Recourse then should be had to medical advice. The diet must be strictly attended to, avoiding every article of food which is known to favour a relaxed state of the bowels, observing great moderation both in food and drink during the whole duration of the epidemic period. Keep the feet dry and warm, and let all fear (for fear in an especial manner disturbs the functions of the bowels,) and apprehension, and particularly that of contagion, be removed from all classes, since it has been satisfactorily proved that the disease does not spread by contagion.*

The first stage of diarrhæa may be accompanied with very slight pain, but often without any; hence, the inattention it frequently produces; the warning of danger is thus neglected, and the time allowed for cure often lost. It is visionary to expect that Cholera, characterized by several

* But be it remembered that a malady, not originally and necessarily infectious, may become so under certain unhealthy conditions: thus, Cholera may be propagated when a number of persons are crowded together in close and unventilated places, in dirty courts and filthy alleys, and when unhappily the constitution is destroyed by irregularities, or reduced by poverty and privation.

Among the results of a Sanitary inquiry, one of the most important was that which established the identity of the track of Cholera, with the track of Typhus and other epidemic diseases. "It is now universally known," say the Commissioners, "that in the Metropolis, as in every town and city,

stages, with symptoms often of an opposite nature, and assuming a variety of forms, can be relieved by any one specific remedy; but careful use of preventive means, and special attention to the occurrence of premonitory symptoms, affords the most effectual protection from this frightful scourge.

Should, however, the diarrhœa be attended with griping pain, give half an ounce to one ounce of castor oil, with 10 or 20 drops of laudanum in peppermint water, or 2 or 3 tea spoonsful of tincture of rhubarb with the laudanum.

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I shall now proceed to collate the most approved methods of treatment, and which have most recently been recommended in severe stages of the disease. In the pamphlet published by Dr. Adair Crawford, and sanctioned by the Metropolitan

the places in which Typhus is to be found, and from which it is rarely if ever absent, and which it occasionally decimates, are the neglected and filthy parts of it, the parts unvisited by the scavanger, without sewers and a due regulated supply of water for the purpose of surface cleansing and domestic use. The track of Typhus is every where marked by the extent of this domain of filth. In 1832 this was equally the domain of Cholera."—*Vide Second Notification. General Board of Health, Gwydir House, Oct.* 31, 1848.

Sanitary Commission, his indications are reduced to the following:—

1st. To sustain moderate reaction. 2d. To relieve painful symptoms. 3d. To restore the biliary secretions, and restrain the excessive evacuations which tend to induce prostration.

In the cold stage, restore warmth, by putting the patient in a warm bed, and using every external application by means of heated bottles and bags to the feet, along the spine, and over the bowels, and rub diligently the extremities and region of the stomach, until perspiration can be obtained; vomiting, mitigated by warm drinks of peppermint; if much nausea and fulness in the stomach, promote vomiting by two table spoonsful of common salt, in half a pint of warm water; a mustard cataplasm applied over the region of the stomach, and kept on 15 or 20 minutes; and if necessary, a blister. Should vomiting and cramps be severe, from three to five grains of calomel may be given, with some stimulating antispasmodics. The following combination has been used with advantage:—R. Tinctura valerianæ comp. 1oz.; ætheris sulphurici, 6 drams; olei menthæ piperitæ, 2 drams. One tea spoonful for a dose, in warm water or mint tea, repeated in an hour; and if the irritability of stomach, cramps, and diarrhœa, continue severe, from 12 to 25 drops of laudanum may be added, and repeated alternately

with the mixture every three or four hours. The calomel also to be repeated, and *frequently*, according to the urgency of the symptoms.

Great irritability and spasm of the stomach may be allayed by pills, consisting of one grain of opium and three of camphor; or by a larger dose of opium at first, and continued in smaller doses at intervals of one, two, or three hours. Intense thirst should be freely satisfied with weak brandy and water, soda water, &c. but to abstain from large draughts at a time, taking only a few table spoonsful when required. By persevering in this manner, with medicine, food, and drink, notwithstanding their being frequently ejected by the stomach, sufficient quantities may be retained to be of service.

All who have used calomel appear favourably impressed with its good effects, in large doses of 10 or 20 grains at longer intervals, or three or four grains every three or four hours, until biliary secretion is restored, or spasms allayed. After vomiting and diarrhœa has been subdued, some mild aperient, as rhubarb or castor oil, should be combined with calomel, as a means of preventing, by the promotion of healthy evacuations, hepatic congestion or gastric fever.

Should the cold stage set in, frictions over the whole surface of the body must be *assiduously persevered in at short intervals*, with such stimu-

lants as warm brandy, in which pepper has been steeped, or a liniment composed of camphorated spirits, turpentine, and oil. Wine and brandy may be administered with arrow root, sago, or good beef tea. Opium is seldom given in this stage. Careful management is required to bring about reaction, and to conduct it to a successful issue reaction must be gradually brought on and sustained—not forced. Harm has been done through inattention to this rule.

The most diligent and careful use of all these means has, however, it must be confessed, proved wholly unavailing in a large number of cases: but there is something mysterious in the process of reanimation from a state of sinking, which prevents our knowing with certainty to the very last in any case, that reaction may not take place. Bodies even considered dead, have been found restored to life, by a spontaneous reaction having taken place. The means of resuscitation should, therefore, be long and assiduously persevered in, as on this will mainly depend the hope of recovery.

Chloroform.—The injection of chloroform was tried by Professor Pirogoff in the Caucasus, but the success of the experiment did not seem to warrant its adoption in St. Petersburgh. There might be reason to apprehend its depressing influence in a disease of prostration. Mr. Brady administered it to a patient presenting all the

symptoms of malignant Asiatic Cholera in an advanced stage. The letter is dated Sept. 19, 1848, addressed to the Editor of *The Record*. "I immediately gave a large tea spoonful of the chloroform mixture (containing about six minims of chloroform and forty of turpentine) in a glass of dilute brandy; and applied mustard poultices to the calves of the legs, the abdominal and thoracic muscles. Thirst was relieved by drinking plenty of water nearly cold. Notwithstanding the irritable state of the stomach, I had the satisfaction to find that the chloroform draught was retained, as well as the fluid drank after it, and was followed by no dejection. I now (half an hour after the draught) gave a pill, with a few grains of calomel. In another hour I again administered the same dose of chloroform, and soon after repeated the pill. The stomach retained both; the pulse rose in power, and became slower; the spasms less frequent; and in an hour after the second dose, she was bathed in a profuse perspiration, and expressed herself comparatively free from all uneasy sensations. The attack was completely subdued, leaving behind it a good deal of debility, from which she is rapidly recovering."—Vide Metropolitan Sanitory Commission, 1848.

As this remedy requires to be used with some caution, on account of its strong direct depressing power, and may be given as a valuable substitute

for opium, it is not unreasonable to expect that from the efficacy of *chlorine æther* in diarrhæa and all spasmodic affections, it may also be introduced as a valuable auxiliary in our treatment of Cholera.

In a pamphlet recently published by Dr. G. S. Hawthorne, he declaims calomel, and with much force and energy insists upon horizontal posture, opium, cordial stimulants, perspiration; the latter to be produced by the application of external heat, and to be continued, while warm diluents are freely administered. It is needless to press the necessity of horizontal posture; it is sufficiently obvious in all affections when the system is exposed to frequent and exhausting drains.* In his fourth he proceeds to describe the specific mode in which his remedies are to be used, in the treatment of the disease. The chief is opium, given in combination with medicines of a cordial, stimulating, and antispasmodic character, of which the most efficient are camphor, capsicum, æther, and aromatic spirit of ammonia, and prescribes the following formulæ:—

* The prostration of all the vital powers in a severe attack of Cholera is often so great that the mere assumption of the erect position for a few minutes may deprive the patient of the slightest chance of recovery. This circumstance would, therefore, render removal to a hospital or elsewhere, as it involves exertion or motion, quite out of the question.

THE PILLS.

Powdered Opium.....12 grains
Camphor .....Half a drachm
Capsicum .....Nine grains

Spirits of Wine and Conserve of Roses, of each a sufficient quantity mixed; to be made into a mass and divided into 12 pills.

THE MIXTURE.

Chloric Æther
Aromatic Spirit of Ammonia
Camphorated Spirit
Tincture of Opium, of each one drachm
Cinnamon Water, two ounces mixed.

A malignant case is stated. Ten of the pills, with two ounces of the mixture, is administered, washing the whole down with a glass of undiluted brandy or whiskey, flavoured strongly with cloves, essence of ginger, or some other warm aromatic spice. In the mean time the patient is covered with an additional blanket, and hot applications to the feet and different parts of the body, so as to restore the temperature, and produce perspiration as quickly as possible, which when procured, a glass of hot and strong brandy punch is to be given. After this, no drink should be given until the perspiration has flowed freely for a few minutes. The patient should then be indulged with copious draughts of mint or balm tea, or any such mild beverage. When the discharges cease, and the pulse restored, and the body covered with

profuse perspiration, the danger is over. The perspiration should be maintained for 12 hours, if the patient can *sustain* it: its duration must be regulated according to the strength and state of the pulse. Such is the treatment in an extreme case: and none, he observes, need be lost, if the practice be sufficiently prompt and bold. In others of a milder form, he reduces the pills to four, and the mixture to an ounce, with, however, the full amount of cordial auxiliaries. He farther observes, that his treatment was successful beyond precedent, and founded on practical experience which was most extensive.

Carbonic Acid.—Dr. Parkin, whose experience has been very extensive in Spain, has published a pamphlet, in which he recommends carbonic acid as an antidote to chlorine poison, and is given in repeated effervescing saline draughts; thus, 30 grains of carbonate of soda put into a tumbler, with a wine glassful of water and a dessert spoonful of simple syrup: then take 20 grains of citric acid, dissolve it in half a wine glassful of water: pour the solution into a tumbler: the mixture to be drank immediately during effervescence. Three or four doses of carbonic acid gas every two hours is sufficient either to arrest the diarrhæa, or to change the character of the evacuations. Should the relaxation continue, after the medicine has been taken two or three times,

he substitutes the pure carbon ; two or three table spoonsful of the powder, suspended by means of the white of an egg, and mixed with any fluid, and taken every two or three hours until purging ceases. If, however, the charcoal cannot be obtained, substitute prepared chalk. These never fail to remove relaxation, after the administration of carbonic acid gas. In the second stage, the remedy must be administered at shorter intervals, as every half hour, until the symptoms of collapse have yielded, and reaction fully established. He observes that "as far as my own experience and observation go, the above treatment, if adopted at the commencement of the stage of collapse, is all that is required; for I have never met with more than three cases of failure out of many thousands to whom I have either given the remedy myself, or known it administered by others. Should, however, reaction be slow, it is desirable to assist the efforts of nature by some stimulant; carbonate of ammonia, or the different preparations of æther, essential oils, carminatives, and diffusible stimuli.

Dr. Wortley Kennedy, in a recent reprint of what he originally published in 1826, as the result of many years' observation of the disease in India, states that in the first stage of ordinary Cholera, bleeding is first adopted, and an emetic or emeto-cathartic is administered : when vomiting and purging have been sufficiently excited, the treat-

ment is concluded by a dose of castor oil and laudanum, which never fails, when retained, to bring on a fæcal discharge, instead of watery evacuations. In the second stage of the disease, in which vomiting and purging appear as the initiatory symptoms, he abstracts blood, administers castor oil and laudanum, blisters the stomach, gives camphor with opium in pills, to allay spasm and check the purging after vomiting has ceased; and finally, stimulants, to support the sinking state of the patient. The author prohibits bloodletting when the evacuations have long continued and positive debility is added to nervous collapse.

Mr. M'Cann's recommendations have been lauded by Mr. Hodgson, of Birmingham, in his evidence before the Sanitary Commission. When sickness with derangement of the bowels is felt, the patient, if an adult, should mix a table spoonful of mustard, or double that quantity of common salt, in half a pint of warm water; a third part of either to be taken every ten minutes until free vomiting be produced. After the stomach has been well cleaned out with more warm water, 30 drops of laudanum should be given in a glass of brandy and water, and followed up with five grains of calomel and two grains of opium; lesser doses to be taken at intervals of every two hours, until bile is observed to pass. Embrocations of heated

turpentine, hot water bottles, a bandage tightly placed around the seat of pain, and from two to five drops of chloroform in a little ginger tea, to allay spasm.

Dr. Clutterbuck's observations on the use of chloroform by inhalation, are most cheering. Spasms and pain were relieved, and the patients became composed, and enjoyed a kind of sleep. He found a simple plan of treatment the best; moderate doses of brandy, with the application of external heat, were the chief indications in the early stages of the disease.

Dr. Parkes, assistant physician to University College Hospital, has just published his Researches into the Pathology and Treatment of the Asiatic or Algide Cholera, being the result of observations collected during two severe epidemics in India in 1843 and 1845. The leading idea he has formed of the nature of Cholera is, not only that it is primarily a disease of the blood, but that the changes induced in the function of respiration, directly consequent on the alteration of the blood, are the proper and distinctive symptoms of the disease. "It may," he thinks, "be satisfactorily proved that the arrest of the watery elimination in cases of inferior intensity, is attended on the whole by positive and undeniable benefit;" that the unchecked watery purging, predisposed to those further more important changes in the

blood, which the choleraic poison had not been sufficiently powerful or intense to produce at once; and although the watery purging be stopped, still its arrest is not synonymous with the cure of Cholera. The disease runs a certain course. When the algide symptoms have once shewn themselves, a case cannot be cut short; even in the mildest forms, warmth does not return, altogether, for a long time; but when the disease has reached its acmé, the patient is invariably seen to remain for some hours in a peculiar state, during which time nature seems to be gradually repairing the injury which has been done. Therefore, when a person is cold and pulseless, with a heart embarrassed, and a respiration nearly arrested, the attempt violently to arouse him from this state by strong stimulants, or by warmth to the surface, by continued frictions, or by measures of a like kind, seems to be founded on a misapprehension. Before the delicate machinery of circulation and respiration can again play, hours must elapse; if medicine could only keep the patient alive for these few hours, all is done that art can ever do. If the *chemical process* of respiration could be maintained in sufficient integrity, to allow the blood to circulate through the capillaries of the lungs, nature would gradually bring about the cure. This is the great problem which medicine has to accomplish, and which, next to the discovery of some

actual antidote to the poison itself, appears to be the most ready method of accomplishing the cure of Cholera. I introduce these pathological and practical remarks, as being highly important in the treatment, and may happily serve to restrain a too extravagant or enthusiastic pursuance of remedies, stimulating or otherwise, and which may terminate in accelerating the progress of the disease." While absorption is possible, the Author recommends bleeding and astringents, and a strong stimulus at the very commencement is occasionally useful. Of astringents, he preferred the acetate of lead, two or three grains, with a quarter of a grain of opium, every half hour, for the first two or three hours; then every hour for a variable period. The cramps best relieved by frictions with opium and turpentine, and mustard poultices to the cardiac region. Cold to the surface, and expose freely to the air, so as to counteract deeper changes in the blood, diffusible stimuli, provided vomiting is not reinduced. When vomiting and purging have been suspended, time should be given for respiration to be properly performed, during which the patient should not be actively treated. He observes that no one remedy is better than another; he has given in all stages calomel, opium, Indian hemp, camphor, quinine, creosote, tartar emetic, salines of all kinds, æther, hyoscyamus—large doses of calomel became in many cases injurious.

He, however, concludes his excellent and talented treatise by observing "that, although the treatment of the severest forms of Cholera has not hitherto been successful, yet, considering the virulent nature of the actual cause, I think there is reason for congratulation that the medical art can do so much—it can arrest the disease in its premonitory stage—it can, with tolerable certainty, carry the patient through the consecutive febrile affections—it can successfully treat the milder cases, seen towards the end of an epidemic—if at present the deep algide stage is beyond its control, there is no reason to dread that such will be always the case. I firmly believe that some great discovery will will speedily reward the efforts of the pathologist, and that a more certain knowledge of the morbid changes in the blood will indicate to us the antidote to this poison, at present so terrible and resistless."

Dr. Willemin, a physician at Cairo, in consequence of an attack of Cholera, occurring to himself, read a paper before the Academie de Medicine on Epidemic Cholera, on the 17th of October last, in which he extols the salutary effects of cannabine (Indian hemp). In the treatment of this disease, a tincture was prepared in the proportion of one grain of cannabine, (being the active principle of the Indian hemp, extracted from the crude drug by a French apothecary at Cairo,) to ten

drops of alcohol; from 12 to 15 drops were given to four patients, already very ill: they all died. Similar doses were given to three other patients, whose cases were not so desperate, and they all recovered. Finally, the cannabine was tried again with three other persons, almost in articulo mortis; they were given stronger doses than those above mentioned, and they all recovered. The last of these patients was no other than the doctor himself; he took as much as 30 drops of the tincture in one dose, equal to three grains of the active principle. His limbs and tongue were cold, cyanosis was complete, and the pulse very weak: in a short time reaction took place. Dr. Moreau, physicion to the Bicêtre Asylum, gave the resinous extract, one drachm of which answers to about four grains of the cannabine. Mr. Allen, in his "Plain Directions for the Prevention and Cure of Cholera," observes, that in 1832 people bought large bottles of cajeput oil, large bottles of laudanum, and large bottles of brandy; these were carefully locked up in a cupboard, as charms against Cholera; they were all untouched—except the brandy. Faith in specifics gave way before the test of experience, which proves that no antidote has yet been discovered for Cholera. Let not the timid be dismayed at this assertion: a false dependence on specifics has brought many to the grave: a sound confidence in skill and judg-

ment of those whose life is spent in the study of disease and its treatment, has, under the Divine Providence, saved many.

In confirmed cases of malignant Cholera, the treatment found most beneficial by the Writer was the following:—Large doses of calomel at the commencement, followed by smaller doses of calomel and opium at short intervals; bleeding, if early and indicated by circumstances; large mustard poultices to the spine and pit of the stomach; friction of the abdomen with hot flannel, or the application of flannel dipped or sprinkled with turpentine; friction of the extremities; artificial heat; alkaline mixtures with small quantities of æther or brandy; soda water, or plain water in moderation to allay thirst, (which, by-the-bye, is unquenchable;) injections of hot salt and water, or of turpentine in salted gruel. Sometimes if the skin was insensible to the mustard poultice, a small piece of linen dipped in strong liquid ammonia, was applied to the pit of the stomach, and covered with flannel till the skin was affected. Emetics did not appear serviceable unless given very early. Astringents in this stage were of no permanent benefit. Quinine sometimes did good.

Dr. Joseph Ayre, of Hull, in a communication made to the Lancet for October 28th, 1848, extols with great zeal and eloquence his mode of treating Asiatic Cholera with small and frequent

doses of calomel and laudanum. Dr. Ayre paid a visit to Hamburgh, to inspect the cases of Cholera in that city, and to make inquiry concerning the treatment pursued; the intensity of the disease, and the treatment for the same being alike in both countries, the result was the same, leaving a mortality of nearly three-fifths of the numbers attacked; "it was, therefore," he observes, "under the fullest conviction which a large experience could give me, that such a mortality might be very, very greatly lessened, that I ventured to recommend to my medical brethren at Hamburgh another and very different practice from that which they followed, supplying them with proof of its success;" and with the same desire of promoting the general good, he offers the method pursued by himself in 1832. Calomel, in one or two grain doses, taken with one or two drops of laudanum, and repeated every five or ten minutes for several successive hours, with an occasional omission of the laudanum at intervals, formed his exclusive remedy for the blue or collapsed stage in all the cases he attended. He scarcely used a single auxiliary means of any kind. He neither bled nor gave stimulants nor emetics, nor used the air baths nor frictions, except to relieve the cramps, nor did he resort to any but the ordinary means of supporting the temperature or the strength of the system. "I gave only calomel, and in the

dose and manner described, and placed no other limit to the use of it than that which was placed by the disease. So long as the disease in the collapsed stage continued, the medicine was continued; for pending the duration of that stage, I desire emphatically to aver, no absorption of the calomel takes place, and no ptyalism can occur; and when that stage was yielding to the remedy I took the needful care to suspend the use of it." In the way already described he gave it alike to infants, though in a smaller dose, and to the aged, in one instance, to a considerable extent, to a woman 92 years of age, in the collapsed stage and nearly pulseless; in a few days she recovered, and survived the attack no less than eleven years, having reached the advanced age of 103, and with a power to take out-door exercise up to a period very near her death. In some cases it was taken in quantities the most considerable, and which nothing but the imminency of the danger from the disease and the experience of its harmlessness could justify. By one man, Vaughan, a tramp, who was admitted into the hospital in the stage of collapse in its most malignant form, and who only emerged from it slowly at the end of three days, the immense quantity of 580 grains of calomel were taken, and who, notwithstanding, without either fever or ptyalism following, was perfectly well and ready to leave us in a week."

Dr. Ayre has appended the testimonies of several medical practitioners of great skill and eminence, in favour of the success of this mode of treatment; and in addition to their attestation, he has received others, equally satisfactory, from different parts of the kingdom.

Such, then, are conveyed to us the various forms of treatment, and instructions to be pursued in dealing with this insidious epidemic. The eminent practitioners, from whose writings I have collated these observations, have evinced in all their labours a truly laudable and untiring zeal in the prosecution of their fearful task: amidst the dying and the dead, they have ardently sought for the primary source of this calamitous disease; and in their treatment, for some certain specific for its cure; and, though partially unsuccessful, still their labours and their science go not altogether unrewarded—they have disarmed it of much of its malignity, when early engaged in the conflict, and have often successfully brought their patients to a happy issue.

Much embarrassment and disappointment have accrued from a treatment too bold, or heroic, as it is termed; and it is to be feared that many lives have been lost by the extravagant administration of powerful remedies in the advanced stages of collapse, with the false and fallacious hope of recalling the nearly-extinct spark of vitality. I

have before alluded to the fact, that reaction has taken place in the bodies of some who were removed and supposed dead; therefore it is sometimes of vital importance to stay the too ardent and solicitous hand, and discreetly await the slower, but safer, directions of science in our administrations.

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